Program

Program *refers to LLNL programs, operations, and support groups that may generate hazardous or potentially hazardous wastes. Each* **program** *is responsible for maintaining close contact with Operations and Regulatory Affairs Division (ORAD) personnel; becoming involved in planning responsible waste-disposal procedures; implementing correct waste-management procedures; and training responsible employees in these procedures.*

Site-Discharge Limits

Taking federal, state, and local regulations into account, ORAD has developed internal discharge limits for the most common and most heavily regulated wastewater parameters. Table 1 shows the federal discharge limits that LLNL is required to apply as internal limits for selected contaminants when the generating process falls within categorical process regulations. To help ensure compliance at the Bldg. 196 outfall, the table also shows the site limits established for the specified parameters when the generating process is noncategorical. Certain other parameters that are of concern to the Livermore Water Reclamation Plant (LWRP), but that are not hazardous in themselves (e.g., biological oxygen

Table 1. LLNL's internal discharge limits for nonradioactive parameters in wastewaters from noncategorical and categorical processes, in milligrams per liter (mg/L).

Parameter	Internal Discharge limits*[a]*	Categorical limits*[b]*	
		Metal finishing	Electronic components
Copper (Cu)	10	2.07	
Chromium (Cr)	4.9	1.7	
Mercury (Hg)	0.05		
Nickel (Ni)	5	2.38	
Zinc (Zn)	15	1.48	
Silver (Ag)	1	0.24	
Lead (Pb)	4.9	0.43	
Cadmium (Cd)	0.9	0.07	
Cyanide (CN)*[c]*	5	0.65	
pH	5–10	5–10	5–10
TTO*[d]*	4.57	2.13	1.37
Oil and grease	500		

[a] These standards have been established to meet the City of Livermore's requirements at the Bldg. 196 outfall.

[b] These standards are specified by the Environmental Protection Agency (EPA). By regulation, the EPA or City of Livermore limit is used, whichever is lower. Noncategorical limits apply where no standard is specified.

[c] Limits apply to CN discharges other than CN salts. CN salts are classified by the State of California as "extremely hazardous waste" and cannot be discharged to sewer.

[d] Total toxic organics. Applies to categorical processes only. Appendix C lists the materials that comprise TTO.

demand, total dissolved solids), may also be evaluated by ORAD on a case-by-case basis to determine acceptability for release.

Table 2 shows LLNL's internal discharge limits for radioactive parameters, both for individual discharges and for the daily total. Any limits indicated in Tables 1 and 2 may be modified as regulations and interpretation of regulations change, as additional regulated processes are identified, or as effluent characteristics change. Environmental Analysts should be consulted to evaluate materials of possible concern that are not listed in either table.

Two frequently encountered issues that are of particular interest in relation to site-discharge limits are:

- The allowable pH range of the wastewater.
- A prohibition against diluting wastewaters in an attempt to meet the discharge limits.

Allowable pH Range. To meet the LWRP pH limits, and to comply with federal restrictions, the pH levels of all discharges from individual processes at the Laboratory must be maintained between values of 5 and 10. Any discharge indicating a pH less than 5 or greater than 10 must be neutralized to a pH level between 5 and 10 before the discharge can be released to the sewer. Note, however, that a pH less than 2.0 or greater than 12.5 is a hazardous waste by regulatory definition and can be neutralized only at Hazardous Waste Management's (HWM) facility. Wastestreams having pH values between 2.1 and 5 or between 10 and 12.4 can be neutralized elsewhere on the site, if done according to HWM procedures.

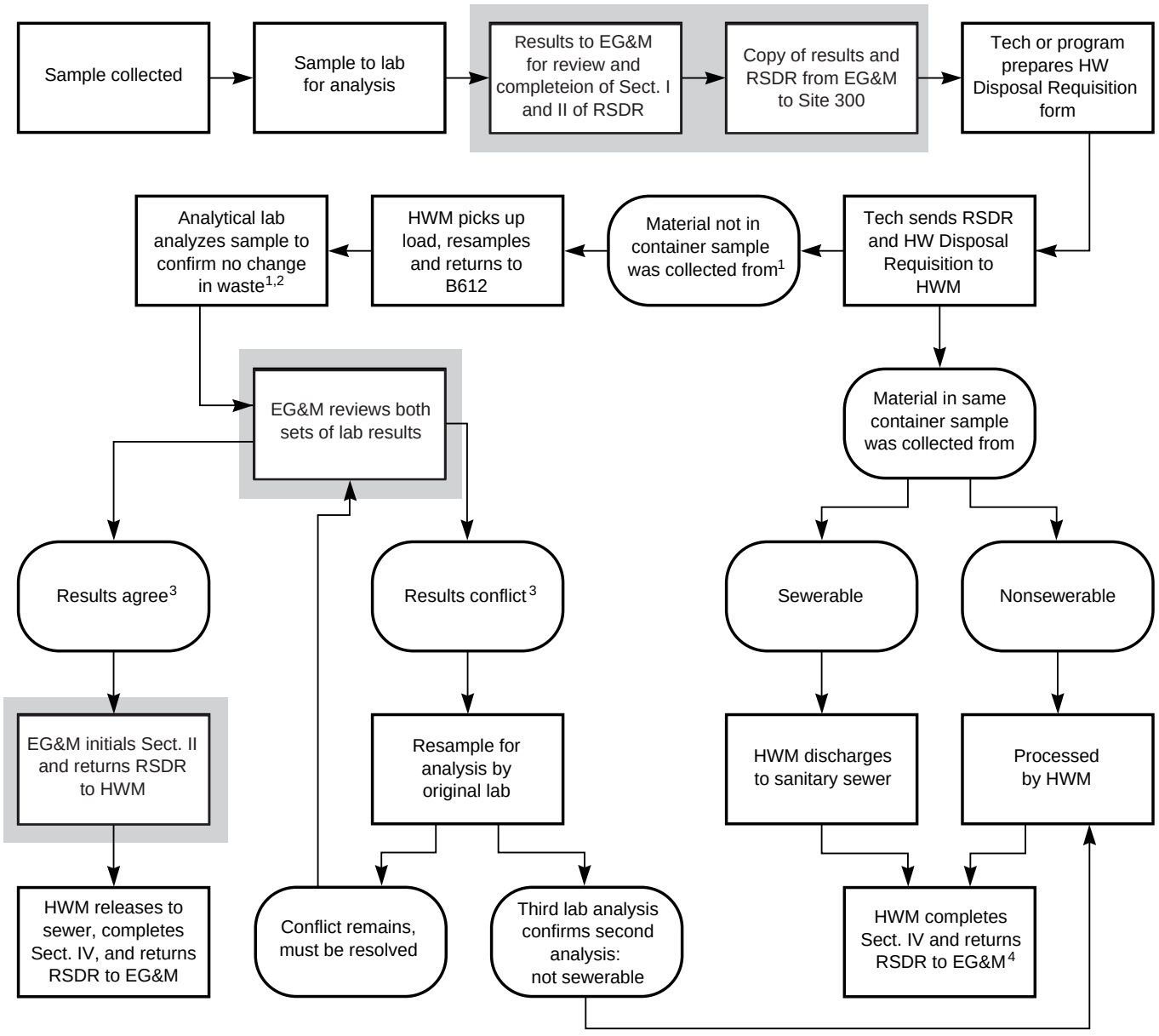
LLNL's allowable pH range (from 5 to 10) is an example of how site limits must take various, sometimes contradictory restrictions into account. State regulations establish that any waste with a pH equal to or less than 2, or equal to or greater than 12.5, is considered hazardous and can be treated with a storage and treatment permit, which is issued by the state. At LLNL, only HWM has such a permit. If other characteristics of the wastewater are within the restrictions of the permit, HWM can neutralize these wastes.

Table 2. LLNL's internal discharge limits for radioisotopes in wastewaters.

Parameter	Individual discharges	Total daily limit for site
Gross alpha	0.3 μCi/1000 L	5.0 μCi
Gross beta	3.0 μCi/1000 L	50.0 μCi
Tritium	5.0 mCi/1000 L	100.0 mCi
Gamma[a]		

[a]*There is no gross gamma limit; isotope-specific limits apply. A list of isotopic limits is available from Environmental Analysts.*

Site 300 retention-system release procedure



1. The wastewater may require analysis for constituents not included on the first analytical request form if the new container or tanker was previously used for other constituents of concern and has not been thoroughly cleaned.

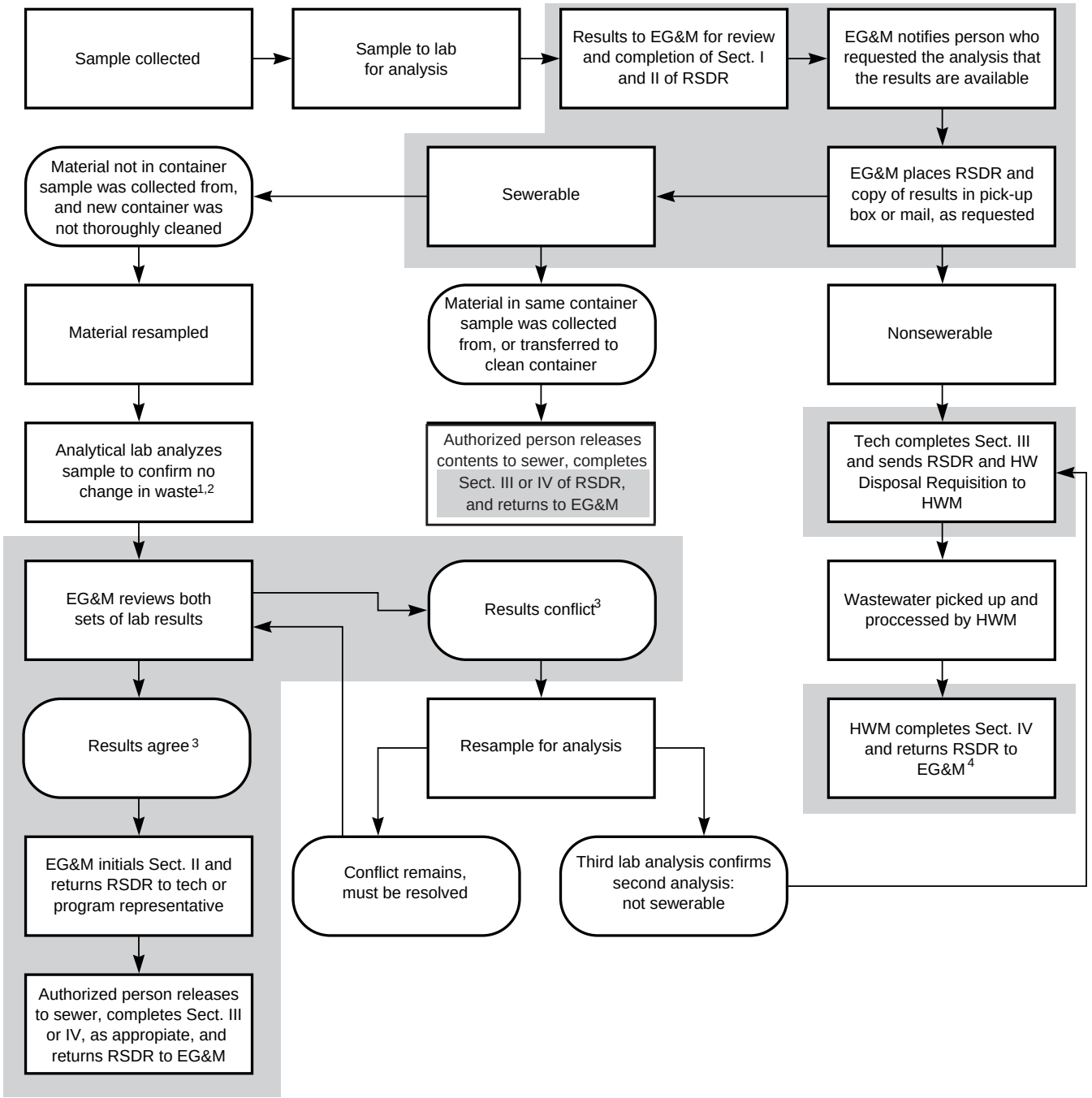
2. Put the analytical lab sample number and HW Disposal Requisition form number for the first sample somewhere on the analytical request form for the second sample. A second RSDR is not required.

3. In general, if both samples are less than the limit, it remains permissible to sewer. Resample if one is less and one is greater than the limit.

4. Subsequent tracking of wastewater available through HWM requisition system.

Figure F-1. Site 300 retention-system release procedure.

Livermore site retention-system release procedure



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4. Subsequent tracking of wastewater available through HWM requisition system.

Figure F-2. Livermore site retention-system release procedure.